

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of controlling an internal combustion engine of a vehicle, the engine communicating exhaust gases to a catalyst, the method comprising:

predicting a future engine operating event that will change an exhaust gas constituent in the engine exhaust gases;  
~~measuring~~determining an oxygen sensor content in exhaust gases downstream of the catalyst coupled to the engine, and adjusting said measurement based at least on a temperature of said oxygen sensor; and,

adjusting an air-fuel ratio of the engine based on said adjusted measurement~~oxygen content~~ and said predicted engine operating event.

2. (original) The method of claim 1 wherein said future engine operating event is an increase in inducted air into the engine.

3. (original) The method of claim 2 wherein said adjusting step includes enriching said air-/fuel ratio prior to said increase in inducted air.

4. (cancelled) The method of claim 1 wherein said determining step includes measuring a signal indicative of oxygen content in exhaust gases downstream of the catalyst.

5. (original) The method of claim 1 wherein said exhaust gas constituent is NOx.

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6. (currently amended) The method of claim 5 wherein said predicting step includes determining that NOx concentrations in the exhaust gases will be increasing due to the future engine event ~~and adjusting the fuel injection amount to provide fuel enrichment in response to the prediction.~~

7. (currently amended) The method of claim 6 wherein said fuel enrichment reduces the oxidant level of the catalyst ~~to reduce the chance of oxidant saturation in the catalyst when the impending engine event occurs.~~

8. (original) The method of claim 1 wherein said event is predicted by determining whether an engine throttle is closed and whether a vehicle speed is below a predetermined calibrated vehicle speed value.

9. (currently amended) A system for controlling an internal combustion engine of a vehicle, the engine communicating exhaust gases to a catalyst, the system comprising:

an exhaust gas oxygen sensor disposed downstream of the catalyst generating a first signal, ~~and~~

a controller receiving said first signal, said controller configured to adjust said first signal based at least on a temperature of said exhaust gas oxygen sensor, and to predict a future engine operating event that will change an exhaust gas constituent in the engine exhaust gases, said controller further configured to adjust an air-fuel ratio of the engine based on the said adjusted first signal and said predicted engine operating event.

10. (original) The system of claim 9 wherein said future engine operating event is an increase in inducted air into the engine.

11. (original) The system of claim 10 wherein said controller is further configured to enrich said air-fuel ratio prior to said increase in inducted air.

12. (original) The system of claim 9 wherein said exhaust gas constituent is NOx.

13. (currently amended) An article of manufacture, comprising:  
a computer storage medium having a computer program encoded therein for controlling an internal combustion engine communicating exhaust gases to a catalyst, the computer storage medium comprising:

code for predicting a future engine operating event that will change an exhaust gas constituent in the engine exhaust gases;

code for ~~measuring~~determining an oxygen ~~sensor~~content in exhaust gases downstream of the catalyst coupled to the engine, adjusting said measurement based at least on a temperature of said oxygen sensor; and,

code for adjusting an air-fuel ratio of the engine based on said oxygen content and said predicted engine operating event.

14. (new) A method of controlling an internal combustion engine of a vehicle, the engine communicating exhaust gases to a catalyst, the method comprising:

a first mode of operation wherein a first oxygen sensor located upstream of at least a catalyst determines a first air-fuel mixture of said internal combustion engine, and wherein a second oxygen sensor is located downstream of said at least a catalyst, and wherein a controller adjusts a first engine fuel amount based on said first oxygen sensor and not based on said second sensor;

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a second mode of operation wherein said upstream oxygen sensor determines a second air-fuel mixture of said internal combustion engine, and wherein a future engine operating event that will change an engine exhaust gas constituent in the engine exhaust gases is predicted, and wherein an oxygen content downstream of a catalyst coupled to said engine is determined, and wherein said controller adjusts a second engine fuel amount based at least on said determined second air-fuel mixture, said predicted future engine operating event, and said downstream oxygen content; and

operating in said first mode during a first temperature of said second oxygen sensor, and operating in said second mode of operation during a second temperature of said second oxygen sensor.

15. (new) The method of Claim 15 wherein said future engine operating event is an increase in inducted air into said engine.

16. (new) The method of Claim 15 wherein said adjusted second fuel amount is enriched prior to said future engine operating event.

17. (new) The method of Claim 15 wherein said exhaust gas constituent is NOx.